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ABSTRACT

A new technique has been developed for admitting new freshman students at the University of Washington. Previously, an Admissions Index (AI) was used, in which the high school grade point average (HSGPA) was assigned twice the weight of the composite verbal and quantitative scores from the Washington Pre-College Test Battery (WPC). To offset the variability in grading practices from high school to high school, the Alternative Admissions Index (Alternative AI) was developed. The Alternative AI assigns equal weights to HSGPA and entrance examination scores. This index can be computed using scores from the WPC, the Scholastic Aptitude Test (SAT), or the American College Testing Program examination (ACT). The Maximum Alternative Index (Maximum AI) has also been developed. Both the original AI and the Alternative AI are computed; the maximum of these two scores is then used for the admission standard. Implementation of the Maximum AI would probably qualify 25 to 100 additional applicants (a 2 to 4% increase) for admission to the freshman class. Several tables present statistical data on the AI's of those applicants who were accepted and of those who were rejected. (Author/GDC)

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Development of a Maximum Admissions Index for Freshman Admissions to the University of Washington

Clifford E. Lunneborg

Abstract

An alternative admissions index giving approximately equal weight to high school grade point average and a sum of verbal and quantitative aptitude test scores is developed and compared with the present admissions index, one which weights high school GPA twice as heavily as test scores. Admitting students on the basis of the maximum of these two could yield from 2 - 4% more qualified applicants than are presently identified.

Educational Assessment Center Project: 580

Development of a Maximum Admissions Index for Freshman Admissions to the University of Washington

Clifford E. Lunneborg

Beginning Autumn 1974 students applying for admission to the University of Washington directly from high school have been evaluated, in part, by an admissions index (A.I.). This index, the development of which is detailed in Lunneborg (1974), is a linear weighting of the high school grade point average (HSGPA) and the sum of the verbal and quantitative composite scores from the Washington Pre-College test battery (WPC VC+QC). Weights were selected so that HSGPA is twice as important as WPC VC+QC. Based on data collected by the WPC program de Wolf (1976a, 1976c) has presented similar A.I.s replacing WPC VC+QC either with the sum of the verbal and mathematics part scores from the Scholastic Aptitude Test (SAT V+M) or with the composite (total) score from the American College Test (ACT Comp).

Because of variability in grading practices from high school to high school, explored in de Wolf (1976b), the Educational Assessment Center was commissioned to explore an alternative formulation of the admissions index, one which would give greater weight to test scores. In particular, we were asked (1) to develop an A.I., referred to here as the Alternative A.I., which would weight test scores and HSGPA equally and (2) to anticipate the impact of the introduction of a "Maximum A.I.", i.e., evaluating applicants in terms of the larger of their "Old" or Alternative A.I. scores.

Developing the Alternative A.I. Based on WPC Scores.

The "Old" A.I. formula for use with WPC scores is given as:

(1) A.I. = (15.847973) (HSGPA) + (0.272315) (VC+QC) - 10.71120.

As noted above, this formula weights HSGPA 2/3 and VC+QC 1/3. The alternative A.I., which weights the two equally, is given by:

(2) A.I. = (11.885980) (HSGPA) + (0.408473) (VC+QC) - 13.036453.

The derivation of (2) from (1) was designed to provide an alternative A.I. which would have the same mean and standard deviation (70 and 10, respectively) as the old A.I. for the target sample upon which the old A.I. was based.

Computing Alternative A.I. Scores for Recent Applicants.

As a way of assessing the Alternative A.I. the Office of Admissions made available HSGPA and test score data for 467 unsuccessful applicants for freshman admissions Autumn 1976. These applicants all had HSGPA's above the minimum requirement of 2.50 but Old A.I. scores below 63, the admissions threshold for that term. Alternative A.I. scores were computed for these applicants and the results are displayed as Table 1. By far the bulk of these rejected applicants had poorer test scores than HSGPA's and received alternative A.I. scores that were no greater than their old ones. Only 79/467 or 17% of them gained points in the recomputation and only 21/467 or 4% gained sufficiently to meet or exceed the threshold A.I. of 63.

Can these applicants be typified in any way? The high school origins of the rejected applicants are summarized in Table 2. These rejected applicants would appear to come from the same places as do the accepted ones. Most of the schools listed in Table 2 send appreciable numbers of students to the University and the number of rejected applicants from any school is probably proportional to the total number of applicants from that school.

What about the 21 rejected applicants with Alternative A.I. scores above 62? Table 3 reveals their origins and some were from smaller schools. While the numbers are too small to make generalizations safe, it is interesting to note

Table 1

Comparison of Old and Alternative Admissions Index Scores for 467 Rejected Autumn 1976 Applicants with Old Admissions Index Scores Below 63.

Old A.I.	Alternative Admissions Index Score: Less Than or Equal to Old	Greater Than Old but Less Than 63	63 or Greater
62	60	0	14
61	48	6	6
60	56	14	1
59	42	7	
58	45	14	
57	32	7	
56	29	4	
55	25	4	
54	12	0	
53	9	1	
46 - 52	30	1	
Total	388	58	21

Table 2

High Schools Represented by Five or

More Students in the Low Admissions Index Sample

No. of Students	High School
20	Bellevue
16	Mercer Island, Roosevelt
14	Shoreline
12	Seattle Preparatory
11	Bothell, Ingraham
10	Sammamish
9	Issaquah, Lincoln, Blanchet
7	Highline, Interlake, Sealth, Bellarmine
6	Shorecrest, Hale, Shadle Park, Stadium, Lakes
5	Clover Park, Meadowdale, Redmond, S. Kitsap, Sehome, Walla Walla, Queen Anne, W. Seattle, Foss, Curtis, O'Dea

Table 3

High School Sources of Low A.I. Applicants

with Maximum (Alternative) A.I. Scores Above 62

No. of Students	High School
2	Mercer Island, Issaquah, Shoreline
1	Bellevue, Central Valley, Edmonds, Ferris, Glacier, Olympia, Vashon, Walla Walla, Lewis and Clark, Curtis, Lakes, Kennedy, Blanchet, Lakeside, O'Dea

that while some of these applicants were from high schools which undergrade (Lakeside and Blanchet are at the top of Table 2 in de Wolf, 1965b) others are from schools which, on the average, appear to overgrade (Issaquah, for example, is at the bottom of de Wolf's Table 2, awarding grades to its successful UW applicants which exceed by a good bit what would be inferred from their UW performance.) Individual applicants would appear to benefit from the Alternative A.I. more than sending institutions or classes of sending institutions. Indeed, one of de Wolf's (1965b) conclusions was that the variability in grading within many high schools was likely a more serious obstacle to the fair evaluation of candidates than was the variability between high schools.

The Distribution of Maximum A.I. Scores.

The results just reported suggest that the present applicant pool would yield relatively few additional qualifiers under the Alternative A.I. computation. There are problems with the data, however, in that potential applicants (and their schools) are likely to decide not to apply once they know their A.I. scores are marginal. Perhaps a better appreciation of the impact of the recomputation can be realized by studying the results of the two A.I. formulations for applicants with high enough test scores and HSGPAs to insure admissions. To this end both Old and Alternative A.I. scores were computed for all 2,261 freshman entrants of Autumn 1975 who had presented WPC test scores.

Cumulative (descending) frequency distributions for this population are reported in Table 4, both for the Old A.I. and for the Maximum A.I. For any applicant the Maximum A.I. can be no smaller than his or her Old A.I. so greater numbers of "high" Maximum A.I. scores are to be expected. How much greater? Table 4 reports, for example, that while there were 1155 applicants with Old A.I. scores of 75 or higher there were 1202 whose Maximum A.I. scores were in this

Table 4

Cumulative Frequency Distributions of Old and Maximum Admissions Indices for 2261 Freshman Entrants of Autumn 1975 with WPC Test Scores

	Old A.I.		Max A.I.	
	Cum Freq.	Cum Pr.	Cum Freq.	Cum Pr.
91 - 102	12		22	.01
90	18	.01	32	.01
89	33	.01	55	.02
88	67	.03	86	.04
87	113	.05	135	.06
86	163	.07	182	.08
85	239	.11	262	.12
84	289	.13	318	.14
83	361	.16	388	.17
82	438	.19	470	.21
81	522	.23	566	.25
80	629	.28	673	.30
79	722	.32	771	.34
78	830	.37	872	.39
77	935	.41	988	.44
76	1043	.46	1095	.48
75	1155	.51	1202	.53
74	1260	.56	1295	.57
73	1342	.59	1375	.61
72	1457	.64	1491	.66
71	1563	.69	1606	.71
70	1656	.73	1705	.75
69	1760	.78	1803	.80
68	1848	.82	1892	.84
67	1930	.85	1960	.87
66	1987	.88	2010	.89
65	2034	.90	2049	.91
64	2073	.92	2090	.92
63	2108	.93	2116	.94

same range. The implication of Table 4 is that, depending upon the admissions threshold chosen, from 2-4% more applicants would qualify under the Maximum A.I. criterion than under the present (old A.I.) system.

Computation of Alternative A.I. for Applicants with SAT or ACT Test Scores.

Utilizing the techniques for equilibrating SAT V+M and ACT Composite each with WPC VC+QC as outlined by de Wolf (1976a) Alternative A.I. formulae were developed for each of these tests. While the Old A.I. for SAT is given by:

(3) A.I. = (15.847973) (HSGPA) + (0.236914) (V+M) - 4.341500

the Alternative A.I. would be computed as:

(4) A.I. = (11.885980) (HSGPA) + (0.355372) (V+M) - 3.481861.

Similarly, for ACT the Old A.I. is obtained from

(5) A.I. = (15.847973) (HSGPA) + (1.003208) (Comp) - 3.931938

and the Alternative from

(6) A.I. = (11.885980) (HSGPA) + (1.504815) (Comp) - 2.867518.

Tables for the Determination of the Maximum A.I.

Maximum A.I. tables have been developed by EAC of the same form as those given for the Old A.I. in Lunneborg (1974) for WPC VC+QC and in de Wolf (1976c) for SAT V+M and ACT Composite. In computing these tables both the Old and Alternative A.I. scores were computed for each possible combination of test scores and HSGPA. The maximum of these was then selected for inclusion in the table. As could be expected, the Old A.I. score is used where HSGPA is high relative to test scores and the Alternative A.I. where these roles are reversed. Copies of these tables have been transmitted to the Director, Admissions and Records. Pending any decision on their adoption, however, they will not be published.

Summary.

An operational technique has been developed for admitting freshman applicants on the basis of the larger of two indices; one giving equal weight to high school grades and aptitude test scores and one giving preferential weight to HSGPA. Implementation of this Maximum A.I. procedure would probably identify 25-100 additional applicants qualified for admission with the freshman class. Reliance upon tables to communicate the relationship between HSGPA and test scores to the A.I. should prove no more difficult or confusing than is presently true (although the Maximum A.I. is actually computed in a discontinuous fashion).

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